CIRM-funded Program Invests More Than $11 Million in Stem Cell Genomics Research Collaborations
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San Francisco, CA – The Stanford/Salk Center of Excellence in Stem Cell Genomics (CESCG) will use $11.6 million of its CIRM award to collaborate with California stem cell scientists on seven different projects aimed at gaining a deeper understanding of deadly or disabling diseases and conditions, such as heart disease and autism.

The CESCG was created by CIRM, California's stem cell agency, in 2014, to establish a Center of Excellence that applies genomics approaches to stem cell research. The goal is to use genomic analyses to better understand how stem cells change as they grow and become different kinds of cells, and then use that knowledge to develop new treatments for a wide variety of conditions.

"A major part of our mission is to establish a Collaborative Research Program (CRP) to support the genomics research needs of stem cell investigators in California," says Michael Snyder, Ph.D., director of the Center for Genomics and Personalized Medicine at Stanford, and the co-Principal Investigator on the project. "We don't just provide funds we also partner with the individual researchers, providing them with the support, expertise and resources they need to conduct successful genomics analyses. We received 30 applications from throughout the State, and after peer review 7 projects were identified as the best new collaborations for the Center."

For some years researchers have been using induced pluripotent stem cells – adult cells that have been reprogrammed to behave like embryonic stem cells - to create and study what is called a "disease in a dish" model. But Drs. Daniel Geschwind and Kelly Frazer and their teams at the University of California, Los Angeles (UCLA) and the University of California, San Diego (UCSD), respectively, are taking this one stage further, looking at many more samples than is typically done and collecting genomic data on those samples. This larger sample size and more detailed study will hopefully lead to a deeper understanding and offer new insights into the diseases, autism and sudden cardiac arrest in these cases.

In the past researchers often depended on animal models for their work; but because results in animals don't always translate when applied to people this was not always an effective way to work. At the University of California, San Francisco and UCLA, respectively, Drs. Arnold Kriegstein and Gay Crooks are using genomics to better understand normal human cell identities in the brain and in the blood and then applying that knowledge to help develop more accurate and more detailed stem cell-based models for us to study.

The CESCG is led by Michael Snyder from Stanford University and Joseph Ecker from the Salk Institute for Biological Studies; researchers from UCSD, the Ludwig Institute for Cancer Research, the Scripps Research Institute, the J. Craig Venter Institute and Illumina Inc., all in San Diego, are also involved in the Center; U.C. Santa Cruz runs the Data Coordination and Management component which will enable the research to be shared with other investigators around California and the world.

"Great science comes from building a great team," says Jonathan Thomas, Ph.D., J.D., Chair of the CIRM Board. "The goal of the Board in creating this program and bringing together this group of researchers was to accelerate our fundamental understanding of human biology and the ways that disease work. That knowledge will help point the way not just to new treatments but also, hopefully, to ways that those treatments can potentially be tailored to meet the needs of individual patients."

These are the first projects that CESCG will initiate with other California researchers as part of their Collaborative Research Program.

Researcher	Institution	Project
Gay Crooks	UCLA	Transcriptome barriers to generating hematopoietic stem cells from pluripotent stem cells
Daniel Geschwind	UCLA	Transcriptional networks in autism spectrum disorder

Arnold Kriegstein	UCSF	A single cell resource of human neural gene expression for improving cell replacement therapies and disease models
Benoit Bruneau	Gladstone Inst. an affiliate of UCSF	Epigenomics of human cardiac differentiation and congenital heart disease
Guoping Fan	UCLA	Genomic analysis of stem cell differentiation in human overgrowth syndrome
Kelly Frazer	UCSD	Functional genomics of drug induced electrophysical phenotypes in human cardiomyocites: a population study
Jeremy Sanford	UCSC	Comparative genomic analysis of alternative splicing and translational control in neurodifferentiation

About CIRM

At CIRM, we never forget that we were created by the people of California to accelerate stem cell treatments to patients with unmet medical needs, and to act with a sense of urgency commensurate with that mission.

To meet this challenge, our team of highly trained and experienced professionals actively partners with both academia and industry in a hands-on, entrepreneurial environment to fast track the development of today's most promising stem cell technologies.

With $3 billion in funding and over 280 active stem cell programs in our portfolio, CIRM is the world's largest institution dedicated to helping people by bringing the future of medicine closer to reality.